

What is claimed is:

1. Transmission equipment transmitting traffic input
from a plurality of ports on the Synchronous Optical Network
/Synchronous Digital Hierarchy network paths of which
5 bandwidths are arbitrarily set by Virtual Concatenation
and Link Capacity Adjustment Scheme, said transmission
equipment comprising:

an input traffic collector which collects and retains
an input traffic amount of each input port for one period
10 at preset periods;

a bandwidth set processor which calculates a bandwidth
for use in each input port from the input traffic amount
retained in the input traffic collector, calculates the
corresponding number of virtual concatenation member paths
15 from the difference of the bandwidth in use and a virtual
concatenation path bandwidth having been allocated to the
input port, and issues an addition command or a deletion
command for adding or deleting the virtual concatenation
member paths for the calculated number;

20 a virtual concatenation controller which sets a
virtual concatenation path bandwidth against the traffic
input from the plurality of ports; and

a link capacity adjustment scheme controller which
sets and changes the virtual concatenation to the virtual
25 concatenation controller, based on the addition command
or the deletion command of the virtual concatenation member
paths issued by the bandwidth set processor.

2. The transmission equipment according to claim 1 further comprising:

5 a virtual concatenation information storage which retains correspondence between each destination node of the virtual concatenation member paths and each input port,

wherein the bandwidth set processor allocates an idle virtual concatenation member path having not been allocated to any virtual concatenation paths to an input port which
10 has the same destination node and requires increasing the virtual concatenation path bandwidth.

3. The transmission equipment according to claim 1 further comprising:

15 an input port set information storage which retains a bandwidth allocation priority and a minimum guarantee bandwidth,

wherein, in the bandwidth set processor, when the addition command of a virtual concatenation member path
20 is issued to the link capacity adjustment scheme controller, an input port having a higher priority is processed preferentially, and when the deletion command of a virtual concatenation member path is issued to the link capacity adjustment scheme controller, the issue of the deletion
25 command is restrained so that the virtual concatenation path bandwidth may not fall below the minimum guarantee bandwidth.

4. The transmission equipment according to claim 1,
further comprising:

5 buffers each of which retains the input traffic
correspondingly to each plurality of input ports,

wherein, the preset period for collecting the input
traffic amount in the input traffic amount collector is
determined by calculating ratios of each buffer size to
each maximum bandwidth for the entire plurality of input
10 ports, and using the shortest value as the preset period.

5. The transmission equipment according to claim 1,

wherein, when the input port bandwidth in use falls
below the virtual concatenation path bandwidth, the
15 bandwidth set processor suspends issue of the deletion
command of a virtual concatenation member path to the link
capacity adjustment scheme controller for a certain time,
thereby avoiding a state of failure to establish the virtual
concatenation required for transmission, caused by
20 excessive addition or deletion of the virtual concatenation
member paths in the link capacity adjustment scheme in case
of unstable input traffic amount.